

For questions 1, 3, 5, 7-11, answer using mathematical terms. For questions 2,4 and 6, answer using complete sentences.

1. A delivery truck has successive displacements of 1.3 km 23° southeast, 0.9 km north, and 2.2 km 17° north of west. Determine the magnitude and direction of the resultant displacement.
2. What would happen to the resultant vector if the displacements were 1.3 miles 23° southeast, 0.9 miles north, and 2.2 miles 17° north of west?
3. A man walks 2 km east and then 4 km at 60° north of east. Determine the magnitude and direction of the resultant displacement.
4. What would happen to the resultant vector if the man walked 2 km west instead?
5. A yacht is tacking into the wind on a zigzag path. On the first leg of the course, the yacht has a displacement of 12 km at 84° north of east. After the second leg has been completed, the yacht's resultant displacement is 15 km at 23° north of east. Determine the magnitude and direction of the second leg of the course.

6. What would happen to the magnitude and direction of the second leg if the resultant vector was 30 km at 23° north of east?

7. An airplane travels 150 km due east and then 150 km 55° north of west. Determine the magnitude and direction of the resultant displacement.

8. On the first leg of the trip, you walk 22 km at 28° north of east. Then you stop for a rest break. After the break you walk 8 km at 47° south of east and stop for lunch. To reach that night's camp, you head 12° south of west for 12 km. Determine the magnitude and direction of the resultant displacement.

9. A delivery truck has successive displacements of 5 km 23° northwest, 2.8 km north, and 5.5 km 47° east of north. Determine the magnitude and direction of the resultant displacement.

10. A man walks 8.2 km north and then 4 km at 29° south of west. Determine the magnitude and direction of the resultant displacement.

11. An airplane travels 285 km due south and then 360 km 18° south of west. Determine the magnitude and direction of the resultant displacement.